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Title:

Investigation of mevalonate pathway in aphids

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Abstract: (Your abstract must use **Normal style** and must fit in this box. Your abstract should be no longer than 300 words. The box will 'expand' over 2 pages as you add text/diagrams into it.)

Introduction: Aphids are important insect pests in temperate regions, damaging crop plants by sucking nutrients from the phloem and by transmitting plant viruses. Chemical control of certain aphid species is becoming extremely difficult due to resistance to insecticides. In this context, the development of novel pest control products that specifically target aphids is highly desirable. To this end, we decided to focus on aphid isoprenyl diphosphate synthases (IPPS) as new potential insecticide targets. Recently, we identified, from the pea aphid and the green peach aphid, a short-chain IPPS capable to generate the immediate precursor of mono- and sesquiterpenes which are major components of the aphid alarm pheromone.

Methods: We investigated the conservation of the previously identified short-chain IPPS between aphid species displaying distinct volatile patterns. A standard PCR cloning strategy was used to isolate the cDNAs of FPPSs from aphid species (*Aphis fabae, Acyrthosiphon pisum, Brevicoryne brassicae, Drepanosiphum platanoides, Megoura viciae, Myzus persicae*). Identification of the deduced amino acid sequences as IPPSs was confirmed by BLASTP analysis.

Results: The predicted translated products have conserved sequence domains required by all scIPPSs for substrate binding and catalytic activity. However, the aphid sequences encode proteins displaying an apparently rare susbtitution (Phe/Tyr→Gln; Q281) at position -4 relative to the first aspartate-rich motif.

Discussion: Analysis of aphid short-chain IPPS pointed some conserved aphid-specific substitutions that could represents a promising target for developing new pest control agents.